TEN YEARS POST BILATERAL TKR WITH LBA – PHYSIOTHERAPY CAN HELP?

ABSTRACT:

Bilateral knee arthroplasty remains a common orthopaedic procedure. Geriatric subject after 10 years of bilateral TKR developing chronic Low back ache (CLBA) was treated for two years (Jan 2019 to Dec 2020) with specific exercises, clinical prognosis, and results were discussed with due evidence. Pre-operative existence of lumbar spinal conditions, obesity, and demineralisation were identified to influence on post bilateral TKR to have CLBA. A knowledge of these factors were to known for clinician to be discussed with the subjects as well due therapeutic measures to be taken by therapist.

KEYWORDS:

TKA – Total knee arthroplasty

LBA – Low back ache

OA – Osteoarthritis

QOL – Quality of life

INTRODUCTION:

An increasing number of TKA globally, there arises a need for improving quality of subjects rehabilitation, follow up, and ensuring patient satisfaction. Outcome of TKA as influenced by literature evidences including preoperative obesity, falls, lumbar pain disorders, chronic OA knee, decrease in proprioception. Whenever possible subjects should pre operatively be treated with known musculoskeletal disorders, along with lowering of obesity to maximise post TKA patients recovery. There were few research follow up post TKA on low back ache, hence this research subject ten years post TKA having chronic LBA with specific physiotherapy, using lumbar stabilisation exercises, yoga postures, in a year has shown moderate reduction in obesity and an improved functional activities were discussed with evidence.

Boyle et al 2011 have among 40 subjects with pre-operative LBA, have shown no improvement in mental health of SF 36 post TKR. Ayers etal 2013 have among 180 patients with TKA; those with pre-operative musculoskeletal LBA have poor physical function after

six months in SF 36, as outcome means on their Quality of life. Stail Bano et al 2014 have insisted on pre-operative lumbar spine disease to becounselled as TKA outcome may be improved. Smith et al 2014 have among 772 TKA with two years follow up have recordedmodest deterioration in the contralateral knee with3.5 units / year. Medication, education, exercises, manual therapy, modalities were not evidencedin chronic LBA (Philadelphia Panel et al 2001).

AIMS & OBJECTIVES OF THIS RESEARCH

a. Where bilateral TKR subjects developing chronic LBA, factorsanalysed

b. To identify the role of specific physiotherapy among these subjects, and evaluate their efficacy.

MATERIALS & METHODOLOGY:

BACKGROUND INFORMATION:

72 year old endomorph female post bilateral TKA complaints of chronic lowbackache

BMI: 29 Kg/ m2 Waist circumference: 106 cm

Non diabetic/ normotensive, mother of two adults has undergone

Bilateral TKR: Left -2008, Right - 2009 was rehabilitated elsewhere for the last Two years & (Since 2018) complaining of chronic lowback ache with occasional radicular symptoms with specific exercises. Her clinical prognosis were discussed with her past medical history reveals hysterectomy in 1990 (She was 42 years) and bilateral OA knees from her age of 48 years. With recurrent lowback pain, which was treated with NSAID and electrical modalities by physiotherapist elsewhere.

- She was getting treated for her chronic lowback ache with hotpack and specificexercises alone by the author and her clinical course of Two years follow-up (from January 2019- December 2020). With clinical reasoning on her clinical prognosis and evidenced discussions forms core of this research presentation.
- Aims and objectives of this research were

  1. To analyse chronic lowback ache with bilateral TKR

  2. Evaluate the role of physiotherapy in this clinical scenario

TREATMENT:

- She was treated with lumbar stabilisation exercises

- Selective yoga postures
- Exercises to improve balance
- Home programme
- Regular walking and avoid long standing with weekly twice frequency of regularphysiotherapy during the period from January 2019 till December 2020 her level of prognosis were as below:

CLINICAL PROGNOSIS AND RESULTS:

TABLE 1. RESULTS ON CADENCE, WC, OSWESTRY SCALE PRE AND POST VALUES

Values	**Oswestry Scale**		**cadence**		**Waist Circumference**	
PRE	68	↓by	25/mt	↑48%	106 cm	↓by
POST	12	82 %	48		102 cm	3.7 %

- With nature of exercises in supine, side, prone, high sitting and standingpostures, exercises were progressed gradually.
- Lumbar stabilisation exercises have resulted in reasonable reduction in pain andan increased quality of life as seen in the above table.
- Yoga postures such as pawanmuktasan, setubandhasana, bshujangasana, paschimottanasana were used mainly to strengthen lower back and the spinal flexibility
- With regular walking herself confidence has increased as her self-care and social activities including driving two wheelers along with an increased duration of walking and improved cadence were recorded.
- She was adviced to continue balance exercises and bimonthly follow up with physiotherapy to continued the achieved clinical progress

DISCUSSION:

Critical research questions arising from this study were answered with evidence as below:

1. What was the significance of lowback ache among bilateral TKR?

Preoperative evaluation of lumbar spinal disorders remains a major determinant among bilateral TKR, as this can influence outcome of the surgery. Bone demineralisation could again be a factor as this subject had hysterectomy at her age of 42 years, hence proper calcium and Vitamin D supplement should be considered. With being obese, weight reduction means can influence on both lowback and the TKR procedure. Longstaff et al 2009 have recorded presence of LBA can lower functional outcome score after TKA. Absence of LBA after TKA was associated with HRQOL Pre intervention patient factors on outcome of TKA was lowback pain (Escobar et al 2007). An improved cadence by 48% along with Oswestry scale reflection on her functional activities by 82% improvement were significant.

2. How to treat with physiotherapy in this clinical situation?

Yoga postures helps to improve flexibility among chronic back pain subjects. This research subject was treated with specific yoga postures such as pawanmuktasan, setubandhasana, bshujangasana, paschimottanasana, veerasan to name a few, as these postures can be added later with her home exercises. Lumbar stabilisation exercises were quite effective as evidenced in reduction of pain, improving strength of spine, lumbar pelvic muscles and evidenced with an improved QOL as displaced with Oswestry scale in the table of results. Again most of these exercises the subject was adviced to continue at home regularly arthroplasty of knee have became a common orthopaedic surgery for the last decade. With an increasing trends in obesity, and prevalence of OA knee, total knee arthroplasty procedures shall be one of the most frequently performed orthopaedic surgeries. At the same time measures to improve quality based rehabilitative measures, due follow up are paramount ensuring greater outcome post TKR. With lesser research on post bilateral TKR subjects QOL, long-term follow up reports are reported. This original research where 72 year old female post bilateral TKR subject developing chronic lowback ache (Nearly after 10 years of knee arthroplasty, was rehabilitated using specific physiotherapy for a year and the results were analysed with evidence. Various causes for bilateral TKR subjects developing chronic LBA including demineralisation after hysterectomy, obesity, pre-operative existing spinal conditions, were discussed.

As these factors can influence on successful outcome of bilateral TKR, should be duly recorded and explained to subjects prior to TKR. Lumbar spinal Exercises (LSE) may be effective in reducing impairments, activity limitations and participation restrictions associated with chronic LBA (O'Sullivan et al 2000). LSE where specific exercises aimed at improving motor performances of spiral muscles like transverse abdominis, multifidus and internal

oblique (Richardson et al 2002). Muscle atrophy, fatigue, motor control deficits of transverse abdominis and multifidus are associated with LBP (Hides et al 2001). Macedo et al 2012 motor control to be an adjunct. Hayden et al 2005 have recorded no role for exercises in acute/ conservative, but chronic; reduce pain and dysfunction (Ferira et al 2016) found LSE effective among chronic LBA. May and Johnson etal 2008 in a (Systematic Review) SR more in a chronic LBA but not an alternative intervention Rackwitz et al 2006 in a SR, LSE to be better than physician medication but lesser than physio interventions. Haggard and person 2007 evidenced LSE to reduce pain and improve QOL. Standart et al 2008 with moderate evidence but should be individualised. Along with a marginal reduction of obesity by 3.7% has added with lowering of her chronic LBA.

CONCLUSION:

Ageing a normal process, where geriatric subjects to live with dignity, having maximal independence with self-care activities remains rehabilitative goals following major surgeries. Post bilateral total knee major surgeries. Post bilateral total knee arthroplasty subject developing chronic low back ache was treated for a year with specific exercises, results were analysed and discussed with due evidence in this research.

Post bilateral TKR, the need for continuous follow up including prevention balance exercises, evaluated obesity, keeping an active life style, treating comorbidconditions such as diabetes, special care for pre-operative lowback ache / lumbardisc lesions should be done on a regular basis of a minimal once in 3 months periods, duly recorded, discusses with orthopaedic surgeon as well subjects involved.

These long term regular follow up can maximise post TKR to obtain greater quality of life and maximise their aches and discomforts.

Further larger sample size studies long term retrospective studies of both sex can strengthen findings of this study

Limitation of this study was the author has treated post TKR (Bilateral) subject only after 10 years and having developed chronic lowback ache. As he was not involved in rehabilitation of the subject post TKR but TKR being an expensive procedure decreases pain but doesn’t resolve many substantial functional limitations associated with OA knee as pointed out by Piva et al 2015, along with later stage intense exercises with individual based exercises to be safe post TKR as recorded by Thoffet et al 2004 and comprehensive exercise programme post TKR leading to functional recovery as supported by Minns et al 2007 were worthy that even

after 10years Bilateral post TKR, subject can benefit with patient specific exercises as key findings of this research.

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